

REMARKS

The present remarks are in response to the Office Action of September 2, 2004. Claims 22 and 23 are currently pending. Reconsideration of the application is respectfully requested in view of the following responsive remarks.

In the Office Action, the following rejections were made:

- (1) claim 22 was rejected under 35 U.S.C. 102(b) or 35.U.S.C. 103(a) as being anticipated by, or in the alternative, as unpatentable over U.S. Pat No. 5,990,202 (hereinafter "Nguyen"); and
- (2) claims 22 and 23 were rejected under 35 U.S.C. 102(b) or 35.U.S.C. 103(a) as being anticipated by, or in the alternative, as unpatentable over U.S. Pat. No. 4,795,794 (hereinafter "Winnik"); and
- (3) claim 22 was rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen in view of U.S. Publication No. 2003/0032716 (hereinafter "White"); and
- (4) claim 23 was rejected under 35 U.S.C. 103(a) as being unpatentable over Winnik in view of White.

Rejections under 35 U.S.C. 102(b)

Before discussing the rejections under 35 U.S.C. 102(b), it is thought proper to briefly state what is required to sustain such a rejection. It is well settled that "[a] claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987). In order to establish anticipation under 35 U.S.C. §102, all elements of the claim must be found in a single reference. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986), *cert. denied* 107 S.Ct. 1606 (1987). In particular, as pointed out by the court in *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1981), *cert denied*, 469 U.S. 851 (1984), "anticipation requires that each and every element of the claimed invention be disclosed in a prior art reference." "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.* 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989).

Nguyen

The Examiner has rejected claim 22 under 35 U.S.C. 102(b) as being anticipated by Nguyen. Nguyen discloses ink jet inks for ink jet printing which include a vehicle, a colorant and a primer core/shell polymer. Upon printing on a print medium, the primer/colorant combination becomes encapsulated by the durable core/shell polymer. The primer core/shell polymer promotes adhesion of the durable core/shell polymer to the colorant and to disperse the colorant in the ink. Nguyen also discloses a method for preparing the primer core/shell polymer and applications that use the primer core/shell polymer. The only discussion about particle size in Nguyen relates to average particle size, which provides no information about polydispersity.

The Examiner has cited Example 11 as teaching the claimed invention. Example 11 discloses an ink composition that is prepared by the following two step process. Step 1) milling together a carbon black colorant, a durable core/shell polymer, humectants and a surfactant; and step 2) after milling, water is added to the ink solution. The result is an ink composition comprising the primer core/ shell polymer particles. The Nguyen reference, however, does not disclose an ink

composition comprising amphipathic polymer particles of the claimed invention, nor does it disclose any information about polydispersity of the particles used.

The following steps illustrate the method taught by Nguyen for preparing the core/shell polymer particles: i) mixing hydrophobic and hydrophilic monomers together; ii) adding the mixture to a solution containing a chain transfer agent, surfactant and stabilizer; and iii) preparing a catalyst solution and adding the polymeric mixture to the catalyst solution. As stated therein, this process forms a primer core/shell polymer that is utilized in its ink compositions. This process for forming the core/shell polymer is a typical emulsion polymerization process. Further, Nguyen lacks any mention of utilizing an ATRP mix as a requisite step and polymerization mechanism for forming amphipathic particles.

One skilled in the art would recognize that typical emulsion polymerization processes, as illustrated in Nguyen, do not form polymers having a polydispersity index within the claimed range, i.e. 1.0-1.2. A polydispersity index of 1.0 to 1.2, as required by claim 22, is considered to be a very uniform polydispersity index that results from the carefully controlled environment of ATRP polymerization. In addition, ATRP processes result in highly predictable molecular weights, molecular weight distributions, controlled structures, etc. With more traditional emulsion polymerization processes, such as those described in Nguyen, the polydispersity is typically greater than 1.5, and more probably, greater than 2.0. This principle is widely known in the emulsion polymerization art. Accordingly, Applicant submits that the ink composition disclosed in the Nguyen reference differs from the ink composition as claimed in claim 22, as there is not teaching or suggestion that the core/shell polymer used in Nguyen would have a polydispersity index that even approaches the polydispersity index range of claim 22.

Thus, the presently claimed invention is not anticipated by the cited reference, and the Applicant respectfully requests that this rejection be withdrawn.

Winnik

The Examiner has also rejected claims 22 and 23 under 35 U.S.C. 102(b) as being anticipated by Winnik. Winnik discloses a process of preparing polymeric color particles, and provides an example of including these particles in a nonaqueous liquid developer composition. Specifically, Winnik teaches dissolving

two monomers into a solvent (where one of the monomers has a dye moiety attached thereto), adding an initiator to the mixture, heating the mixture, and retrieving the product from the mixture. Using particles prepared according to this process, Winnik further teaches of a nonaqueous liquid developer (not an ink) which comprises an Isopar G vehicle, a charge control agent inclusive of a metal soap, and a dispersed color particle.

Both claims 22 and 23 of the present application require that the vehicle be water or a mixture of water and one or more humectants. Thus, this reference does not teach every element of the presently claimed invention. Further, areas in the specification that mention aqueous composition in Winnik are related to the formation of the color particle, not the liquid developer composition formed using the color particles. In each of these cases, the water is removed to collect the color particles. Thus, there is a direct teaching away of aqueous compositions that include these particles. If, on the other hand, the Examiner is relying on the intermediate composition for this rejection, i.e. before removal of the water from the formed particles, then there is no surfactant in the composition (as the metallic soap is not added until forming the nonaqueous liquid developer), and still the claim limitations are not met.

Reconsideration in view of the above discussion is respectfully requested.

Rejection under 35 U.S.C. 103(a)

Before discussing the obviousness rejections herein, it is thought proper to briefly state what is required to sustain such a rejection. The issue under § 103 is whether the PTO has stated a case of *prima facie* obviousness. According to the MPEP § 2142, the Examiner has the burden and must establish a case of *prima facie* obviousness by showing some motivation in a prior art reference to modify that reference, or combine that reference with multiple references, to teach all the claim limitations in the instant application. Applicant respectfully asserts the Examiner has not satisfied the requirement for establishing a case of *prima facie* obviousness in this rejection.

Nguyen

Applicant submits that claim 22 is not *prima facie* obvious in view of Nguyen. As mentioned, Nguyen recites inks compositions which include a vehicle, a colorant, and a primer core/shell polymer. Nguyen also discloses a method for preparing the primer core/shell polymer and applications that use the primer core/shell polymer. Further, Nguyen teaches average particles sizes of the primer core/shell polymer; however, there is no mention of polydispersity. The polydispersity index (PDI) varies depending on the process used to form the particles. One skilled in the art would recognize that an ATRP process would result in a more uniform polydispersity index than a more typical emulsion polymerization processes, as illustrated in Nguyen. A polydispersity range from 1.0 to 1.2 indicates very consistent polymer chains, which results from a more controlled environment typical of an ATRP process. As a result of a more controlled process, ATRP provide more predictable molecular weights, molecular weight distribution and more uniform shapes of polymer particles. In contrast, typical emulsion polymerization processes tend to be more random, and result in higher polydispersity indexes, e.g., >1.5 or >2.0.

Thus, Nguyen fails to teach or motivate one skilled in the art to modifying the ink composition to include the elements of the presently claimed invention, i.e. amphipathic polymer particles having a PDI of about 1-1.2. As a result, claim 22 can not be *prima facie* obvious in view of Nguyen. Therefore, Applicant respectfully requests that this rejection be withdrawn.

Winnik

Applicant contends that claims 22 and 23 are not *prima facie* obvious in view of Winnik. As previously discussed, Winnik discloses a process of preparing polymeric color particles, and provides an example of including these particles in a nonaqueous liquid developer composition, not an ink. The nonaqueous liquid developer comprises a vehicle (Isopar G), a charge control agent inclusive of a metal soap, and a dispersed color particle. It appears that the Examiner is equating the Isopar G to the Applicant's water vehicle, the metal soap to the Applicant's surfactant, and the dispersed color particle to the Applicant's amphipathic polymer particles.

As clearly set forth in both claims 22 and 23 of the present application, the vehicle is water or a mixture of water and one or more humectants, not a nonaqueous composition such as Isopar G. As there is no teaching of forming aqueous ink compositions in any context, there is no suggestion for modifying Winnik to arrive at the claimed invention. Further, as described previously, each mention of an aqueous composition in Winnik is related to the formation of the color particle, not the liquid developer composition which is formed using the color particles. Additionally, in each case dealing with the formation of the particles in Winnik, the water is removed to collect the color particles. Thus, there is a direct teaching away of aqueous ink compositions that include these particles. If the Examiner is relying on one of these intermediate compositions for this rejection, i.e. before removal of the water from the formed particles, then there is no surfactant in the composition (as the metallic soap is not added until forming the nonaqueous liquid developer), and the claim limitations are still not met.

Claim 22 is further distinguishable over Winnik in that it requires a pigment. If the Examiner takes the position that the color particle of Winnik is the pigment of claim 22, then Winnik does not teach of an amphipathic particle. If, on the other hand, the Examiner takes the position that the color particle of Winnik is the amphipathic particle of claim 22, then Winnik does not teach of a pigment. Thus, in either case, the claim limitations are not met and a *prima facie* case of obviousness has not been shown by the Examiner.

Reconsideration in view of the above discussion is respectfully requested.

Nguyen in view of White

The Examiner has reject claim 22 under 35 U.S.C. 103(a) as being unpatentable over Nguyen in view of White. The Examiner has indicated that the Nguyen reference does not disclose the method of making its binder, and the White reference teaches the preparation of pigment dispersion through an ATRP process. This is not believed to be the case, as Nguyen describes specifically how to make its core/shell polymer particles, which is used synonymously with the term "binder" in the specification. See col. 25, lines 36-37. The Examiner also alleges that the commonly known and available methods of polymerization can be utilized, and one

skilled in the art would have found obvious to utilize the ATRP process disclosed in White to prepare the claimed invention.

As described above, one skilled in the art would recognize that more typical emulsion polymerization processes, such as the process illustrated in Nguyen, do not form polymers having a polydispersity index within the claimed range, i.e. 1.0-1.2. As there is no teaching or suggestion in Nguyen that particles having a low polydispersity index are desirable, then where is the motivation to seek out a binder that has significantly different properties than the one disclosed? Further, the entire purpose of Nguyen is related to the production and use of these core/shell particles. To choose a different particle than the one disclosed in Nguyen under these circumstances would be contrary to the teachings of Nguyen as a whole. As previously described, ATRP processes result in highly predictable molecular weights, molecular weight distributions, controlled structures, etc. With more traditional emulsion polymerization processes, polydispersity is typically greater than 1.5, and more probably, greater than 2.0. This is widely known in the emulsion polymerization arts. On the other hand, though the White reference teaches preparing pigment dispersions controlled by an ATRP processes, it does not teach of the specific ink compositions claimed in the present application.

Reconsideration on these grounds is respectfully requested.

Winnik in view of White

The Examiner has also rejected claim 23 under 35 U.S.C. 103(a) as being unpatentable over Winnik in view of White. The Examiner alleges that the commonly known and available methods of polymerization can be utilized in Winnik, and one skilled in the art would have found obvious to utilize the ATRP process disclosed in White to prepare the claimed invention. However, the Examiner has not provided the foundation for this statement. In order for a reference to be render obvious, the Examiner has the burden of providing proof of the teaching or suggestion to modify or combine the two references.

As described above, Winnik discloses a process of preparing polymeric color particles, and provides an example of including these particles in a nonaqueous liquid developer composition, not an ink. The nonaqueous liquid developer comprises a vehicle (Isopar G), a charge control agent inclusive of a metal soap, and

a dispersed color particle. It appears that the Examiner is equating the Isopar G to the Applicant's water vehicle, the metal soap to the Applicant's surfactant, and the dispersed color particle to the Applicant's amphipathic polymer particles.

In claims 23 of the present application, the vehicle is water or a mixture of water and one or more humectants, not a nonaqueous composition such as Isopar G. As there is no teaching of forming aqueous ink compositions in any context, there is no suggestion for combining Winnik with another reference that teaches aqueous compositions. In other words, there is no motivation to combine the teachings of Winnik with White, where Winnik does not teach or suggest the formation of an aqueous ink in any form.

Reconsideration on these grounds is also requested.

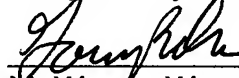
CONCLUSION

In view of the foregoing, Applicant believes that claims 22 and 23 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone Susan E. Heminger at (650) 236-2738 so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025.

Dated this 2nd day of December 2004.

Respectfully submitted,



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